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Effects of Sterilization on the Energy-Dissipating Properties of Balsa Wood

Planetary landing of sterilized instrumented payloads lends impetus to the study of shock absorbers or impact limiters. The primary approach is to dissipate energy by crushing a radio frequency-transparent material, thereby lessening impact forces. Balsa wood from trees growing wild in coastal jungles of Ecuador has properties that make it an attractive candidate for the application.

A recent technical report on the effects of sterilization on the energy-dissipating properties of balsa wood is available. Sections in this report are: Introductions; Sterilization Effects; Screening; Feasibility of Balsa Properties' Improvement; Conclusions; Appendix A, Appendix B; References; and Bibliography. The report also includes an abstract, tables, and figures.

Sterilization by ethylene oxide plus heat enhances the average specific energy of balsa (density of 6 to 10 lb/ft³) to 23,097 ft-lb/lb as compared with an average of 20,400 ft-lb/lb for samples in the moist (6-8% H₂O) condition. There is no significant relationship of density to crushing properties within the range

studied. Plastic impregnation followed by irradiation-induced polymerization does not improve specific energy of balsa wood.

The following documentation may be obtained from:

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Single document price \$3.00
(or microfiche \$0.65)

Reference: NASA CR-103306 (N69-31341), Effects of Sterilization on the Energy-Dissipating Properties of Balsa Wood

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No patent action is contemplated by NASA.

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